USSR

UDC 616.314-089.843-036.8

GUTNER, Ya. I., KUSHNIR, I. I., and MARGULIS, R. Ya., Polyclinic of the Ministry of Foreign Trade USSR and Polyclinic No 12 of GUZM

"Long-Term Results of Tooth Replantation"

Abstract: Five-year follow-up of 53 persons who had one tooth each replanted showed that only 28 teeth had survived. Twenty-five had to be removed during the first 3 years because of inflammation, suppuration, or marked resorption of the roots. Fifteen of the surviving teeth exhibited pathology of the periodontium and surrounding tissues (gingival fistula, chronic infiltration of the mucosa, root resorption, looseness of the tooth). Thirteen were in good condition and served mostly as supports for bridges. Thus, replantation of teeth is not a satisfactory method of treating periodontitis. The operation should be reserved only for cases where conservative treatment has been ineffectual and where tooth preservation is dictated by the peculiar condition of the jaws.

1/1

Acc. Nr: AP0047197 G   Ref. Code: UR0511

Ya. I. Gutner — R. Ya. Margulis — ON SOME FEATURES PECULIAR TO THE PROCESS OF RESORPTION IN REPLANTATION OF TEETH

Summary. The article contains clinico-roentgenological observations over some features specific to the development and localization of the process of resorption of the root in replantation of the tooth. The resorption process is characterizedo by that the destruction of the dental root occurs mainly in the pericervical portion, embracing circularly this region of the root, as if detaching the drown from the root. The remaining part of the root retains its normal relation with the periodontium and alveolus.

1/1

REEL/FRAME
19790696

DI 2

USSR

CHIGOGIDZE, Z. N., KHUCHUA, N. P., GUTNIK, L. M., KHARATI, R. G., VARLAMOV,
I. V., BEKIREV, U. A., TYUTYUN, A. A.

"Concerning the Mechanism of Failure of Gunn Diodes"

Abstract: Devices based on the Gunn effect operate most effectively at high
bias voltages; however, increasing the voltage causes breakdown of the de-
vice. At present there is no unanimous opinion on the mechanism of failure
and degradation of Gunn diodes. In this paper the authors investigate co-
planar Gunn diodes with plane-parallel and annular electrode configurations
both with and without a silicon dioxide passivating coating. The diodes
were tested in the pulse mode. It is shown that in accordance with pre-
viously available experimental data the failure of Gunn diodes takes place
as a result of formation of a shorting channel between the contacts of the
device. Information is obtained on the dynamics of the visible portion of
the breakdown by means of motion picture photography of this process through
an optical microscope. It is shown that silicon dioxide passivation of the

1/2

USSR

active region has an appreciable effect on the nature of the visible portion
of the breakdown and on the ratio of the breakdown voltage to the threshold
voltage. A microscopic x-ray analysis is made of the composition of the
contact regions and the channel on various stages of thermal breakdown.
It is found that a transverse magnetic field affects the position of the
shorting channels and the ratio of the breakdown voltage to the shorting
voltage. A study is made of Gunn diode emission in the infrared region of
the spectrum at voltages close to the breakdown voltage. It is concluded
that the cause of failure of Gunn oscillators at high bias voltages is the
formation of current strings caused by the development of an S-shaped
current-voltage curve due to impact ionization when a strong field domain
passes over the specimen. The authors thank M. S. Shur for discussing the
results of the paper, and N. N. Mamatsashvili for taking part in the mea-
surements.

2/2

Nondestructive Testing

USSR

UDC 621.771.23

LIPUKHIN, YU. V., PAKHOMOV, L. N., and GUTNIK. M. V. (Cherepovets Metallurgical Plant, Ministry of Ferrous Metallurgy USSR)

"Non-Destructive Testing of a Weld in Continuous Chemical Cleaning"

Abstract: A new method of non-destructive testing of weld joints in chemical cleaning, based on pressing in a punch into a weld with simultaneous application of dynamic loads, is described. Tests were conducted on a special stand. The results show that such testing makes it possible to roll strips with welded joints without decreasing the rolling rate. The hourly productivity of the mill is increased significantly and the quality of the finished sheet is improved. Refuse decreases, due to process stabilization. The method described can also be used in investigating the separation of metal into layers.

1/1

USSR

UDC: 681.34:681.325.53

GUTNIKOV, V. S., Leningrad Polytechnical Institute imeni M. I. Kalinin

"A Converter Which Changes a Time Interval, Frequency and Frequency Ratio to Digital Code"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332571, Division H, G, filed 24 Oct 68, published 14 Mar 72, p 224

Translation: This Author's Certificate introduces a converter which changes a time interval, frequency and frequency ratio to digital code with correction of the result of conversion. The invention is based on Author's Certificate No 227722 with the distinguishing feature of simplification by using two coincidence circuits with some of their inputs connected to the circuit for the initial setting of the main counter, while the other inputs are connected to the outputs of the flip-flops in the auxiliary counter. The outputs of the coincidence circuits are connected to the circuits for the initial setting of the auxiliary counter.

1/1

- 77 -

USSR

GUTNIKOV, V. S., Candidate of Technical Sciences, and LOPATIN,
V. V., Engineer

"Integrated Circuit Voltage-to-Frequency Converter"

Abstract: The description is given of a voltage-to-frequency con-
verter, developed in the form of an integrated circuit for use in
a complex of frequency-digital control instruments for general in-
dustrial use. Its design is basically one of balanced conversion
with pulsed feedback, a principle which is now recognized as ex-
tremely promising since it permits obtaining a highly rapid opera-
tion speed and low conversion error. The basic components of the
converter circuit are integrated circuits of the 101, 122, and 140
types, and the operation of the entire arrangement is based on the
charge of a capacitor in an integrating circuit by a current pro-
portional to the input voltage, and its discharge by pulses of a
stable quantity of electricity. The block diagram and schematic
of the instrument are given together with a mathematical analysis
of its capabilities, and the circuit operation is qualitatively
explained.

1/1

USSR

GUTNIKOV, Ye. V.

"Contours and Coboundaries in Ultragraphs"

Translation: New objects are introduced called ultragraphs, naturally generalizing the concepts of the oriented graphs and the hypergraph. The boundaries and coboundaries of an ultragraph are studied. These more general concepts allow the connection between various approaches to the theory of cycles and sections presented in the literature on graph theory to be established, expanding the area of application of the cyclomatic number.

1/1

1/2   016   UNCLASSIFIED   PROCESSING DATE---27NOV70
TITLE--SEPARATION OF IRON III AND ALUMINUM FROM COPPER, NICKEL, COBALT,
   CADMIUM, AND ZINC USING ETHYLENEDIAMINE -U-
AUTHOR-(03)-TEODOROVICH, I.L., MECHOS, KH.Z., GUTNIKOVA, R.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 526-31

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM, COPPER, METAL CHEMICAL ANALYSIS, NICKEL, COBALT,
   CADMIUM, ZINC, CHEMICAL PRECIPITATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0381   STEP NO--UR/0075/70/025/003/0526/0531

CIRC ACCESSION NO--AP0126136
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0126136

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COPPTN. OF CU(II) AND ZN(II)
WITH FE(OH) SUB3 AND AL(OH, SUB3 WAS STUDIED IN ORDER TO ELUCIDATE THE
INTERACTION OF SOME BIVALENT METALS WITH PPTS. IN THE PRESENCE OF
ETHYLENEDIAMINE AND NH SUB4 OH. WHEN MACROAMTS. OF FE(III)-CU(II),
FE(III)-ZN(II), AL(III)-CU(II), AL(III)-ZN(II) ARE SEPD. WITH
ETHYLENEDIAMINE, THE COPPTN. OF BIVALENT CATIONS DECREASED CONSIDERABLY.
THE COPPTN. OF CU WITH FE(OH) SUB3 AND AL(OH) SUB3 IS DUE TO
ADSORPTION.   THE COPPTN. OF ZN WITH FE(OH) SUB3 IS DUE TO THE FORMATION
OF A CHEM. COMPD. AT A ZN:FE RATIO OF 1:1. ON THE COPPTN. OF ZN WITH
AL(OH) SUB3 THE FORMATION OF CHEM. COMPDS. OF THE VARIABLE COMPN. AT A
ZN:AL RATIO FROM 1:1 TO 1:2 CAN BE OBSERVED. AT SMALL ZN(II) CONCNS.
THE COPPTN. OF ZN WITH FE(OH) SUB3 AND AL(OH) SUB3 MAY ALSO BE DUE TO
ADSORPTION.   FACILITY: INST. CHEM., TASHKENT, USSR.

UNCLASSIFIED

l/2   U13

UNCLASSIFIED

TITLE--OPTIMUM LIMITS OF THE MELT DOWN CARBON CONTENT --U--

PROCESSING DATE--13NOV70

AUTHOR-(05)-YELANSKIY, G.N., KUDRIN, V.A., MUTOV, V.I., GUTNOV, R.B., TUNKOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(2), 123-6

DATE PUBLISHED------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--OPEN HEARTH FURNACE, METAL MELTING, CARBON STEEL, SULFUR, PHOSPHORUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1948

STEP NO--UR/0133/70/030/002/0123/0126

CIRC ACCESSION NO--AP0115756

UNCLASSIFIED

CIRC ACCESSION NO--AP0115756 UNCLASSIFIED   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STATISTICAL STUDY, CONFIRMED BY 75 TON EXPTL. OPEN HEARTH HEATS, SHOWED THAT A MELT DOWN C CONTENT GREATLY DIFFERENT FROM ITS CONTENT OF FINISHED STEEL IS EQUALLY HARMFUL FOR ALL TECHNOLOGICAL OPERATIONS, BE IT TOO HIGH OR TOO LOW. AN EXCESSIVE C CONTENT SPECIFIES THE LENGTH OF THE WHOLE BOILING PERIOD, INCREASES ORE CONSUMPTION AND RAISES TAPPING TEMP. WITHOUT AFFECTING THE DECARBURIZATION RATE AND S AND P CONTENT OF FINISHED STEEL. FOR 0.10-0.65PERCENT C STEELS, HEATS HAVE TO MELT WITH A C EXCESS OF 0.35-0.65PERCENT ABOVE THE FINAL.

UNCLASSIFIED

USSR   UDC 615.31:547.857.4

GUTOROV, L. A., and GOLOVCHINSKAYA, YE. S., All Union Scientific Chemical-
Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Syntheses in the Purine Series. XXXIV. Conversion of N,N'-Dimethylxan-
thines in the Reaction with Phosphorus Oxychloride in Presence of Tertiary
Amines"

Moscow, Khimiko-Farmatsevtichekiy Zhurnal, Vol 7, No 5, May 73, pp 27-29

Abstract: Theobromine, in the presence of N,N-dimethylaniline (DMA is
converted to 2,6-dichloro-7-methylpurine (I) in 25% yield. When phosphorus
pentachloride is used instead of DMA, the yield is almost quantitative.
Theobromine reacts with $POCl_3$ in the presence of DMA to yield (I) and a
bright red para-condensation product of DMA and a molecule of purine; the
structure of this addition product was confirmed by PMR analysis. To avoid
this side reaction, it is recommended to use triethylamine hydrochloride
instead of DMA hydrochloride.

1/1

TURSUNOV, A. V., GUTOROVA, V. L., KONDRASHEV, A. I., and
PILYUSHENKO, V. L.

"Cold-Resistant Nickel-Free Structural Steel"

Abstract: A new procedure for producing cold-resistant nickel-
and molybdenum-free steel developed jointly by members of the
Don Scientific Research Institute of Ferrous Metallurgy and the
Novokramatorsk Machine Building Plant is described. The
chemical composition of this steel is (%): 0.35 C, 0.33 Si,
1.16 Mn, 0.29 W, 0.017 Ti, 0.021 Al, 0.034 S, and 0.023% P.
Mechanical properties were determined after tempering at 880°
and annealing at 600 and 650° on 28 × 28-mm longitudinal samples
cut into bars. The sensitivity to overheating was determined
by the drop in impact strength. The test results show that
the steel is insensitive to overheating, possesses a significant
reserve of viscosity (22-29 kg/cm^2 at -70°C), and its cold
brittleness threshold, defined as the temperature at which 50%
of the viscosity is lost, compared with viscosity at room tem-
perature, lies below -70° C. 1/1

GUTOROV, L. A., and GOLOVCHINSKAYA, YE. S., All-Union Scientific (Research)-
Pharmaceutical Research Institute imeni S. Ordzhonikidze, Mosc w

"Synthesis in the Purine Series. XXVII.   Addition Products of Phosphorus
Oxychloride and 2-Chloro-3,7-dimethylhypoxanthine"

Abstract: Heating 1 g of 2-chlorotheobromine in 2 ml of phosphorus oxychloride
at 60-80° for several minutes yields 85% of a crystalline addition product,
m.p. 98-102°. To obtain 2,6-dichloro-3,7-dimethylpurine and m.p. r.,
165-172°, 5 g of theobromine is dissolved in 30 ml of chloroform sepd, with
with heating, and dry HCl is passed through the solution. After cooling, the
product is filtered off, washed with petroleum ether and dried. Its infrared
shows bands at: 587, 612, 655, 723, 742, 767, 695, 1000, 1107, 1001, 121 , 1134,
1232, 1293, 1352, 1415, 1470, 1588, 1606, 1623, and 1719 cm-1.

1/1

USSR

UDC 615.221:547.857.47.011.5

GUTOROV, L. A., NIKOLAYEVA, L. A. and GOLOVCHINSKAYA, YE. S., All-Union
Scientific Research Chemical and Pharmacentical Institute imeni Sergo
Ordzhonikidze, Moscow

"Syntheses in the Purine Series. Report 28. The Role of Phosphorus Penta-
chloride in the Transformation Reaction of Theobromine or 8-Chlorotheobromine
into Respective 2,6-Dichloropurines.

Abstract: This study concerns the transformations of adducts (I, II) which
were formed in the reaction of theobromine (III) or 8-chlorotheobromine (IV)
with phosphorus oxychloride when treated with phosphorus pentachloride. It
is noteworthy that 2,8-dichlotheobromine (V) is capable of addition of not
only phosphorus oxychloride or phosphorus pentachloride to form adducts II
or a new adduct -- a,6,8-trichloro-3,7-dimethyldihydropurine tetrachlor-
phosphate (VII) but also phosphorus pentachloride. In this case a new
adduct is formed in which OSbCl$_4$ (IX) is the anion. It reacts with alcohol
and is transformed to the ethoxyderivative (X). The position of the ethoxy-
group is confirmed by the formation of 6-ethoxy-8-chlorotheobromine as a
result of hydrolysis. The basic transformational stages of III and IV to

1/1.

- 7 1 -

USSR

GUTOROV, L. A., et al, Khimiko-farmatsevticheskiy zhurnal, Vol 5, No 12, Dec 71, pp 17-20

I, III, VIII, XIII, XIX : R = H II, IV, VII, XII, XVIII : R = CL

2/3

USSR

GUTOROV, L. A., et al, Khimiko-farmatsevticheskiy zhurnal, Vol 5, No 12,
Dec 71, pp 17-20

their respective 2,6-dichloropurines are detailed and the intermediate com-
pounds identified. The experimental results are believed to have significant
potentials for the synthesis of new purine derivatives. (3 biblio. refer-
ence)

3/3

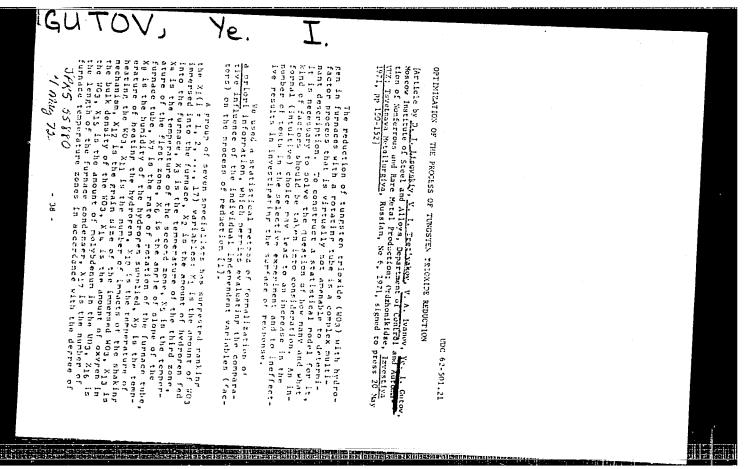USSR   UDC   621.396.69:621.316.543(088.8)
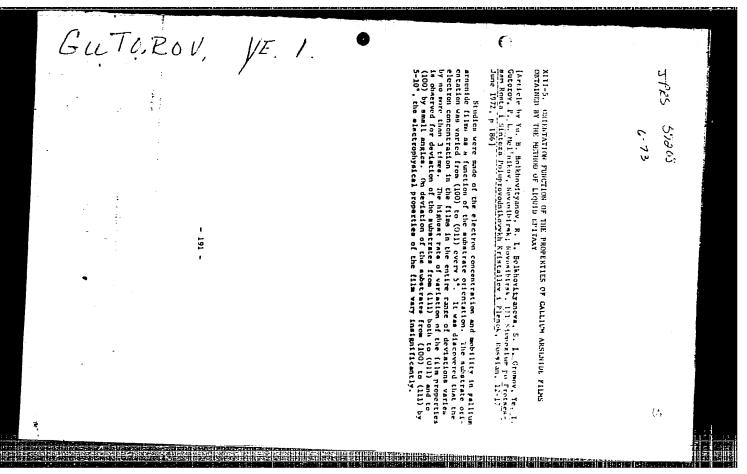
BAKUTIN, V. I., SEKCHINOV, V. A., GUTEROV, N. V.

USSR Author's Certificate No 253190, Filed 25 Mar 68, Published 28 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V367 P)

Translation: This Author's Certificate introduces a miniature pushbutton switch which contains a housing, contacts, drive element and locking device. As a distinguishing feature of the patent, the switch is designed for sequential contact selection. Three coaxial discs are used in the switch, the central one being movable while the upper and lower discs are securely fastened to the housing. Beveled lugs are uniformly arranged around the edge of the lower surface of the movable disc and the upper surface of the bottom disc. The bevels assure rotation of the movable disc through a certain angle. The lower side of the upper disc is fitted with teeth uniformly arranged around the periphery. Fixed contacts are fastened to the lateral surfaces of each of these teeth. On the upper side of the movable disc are two diemetrically opposite teeth which rotate the movable disc, one of them acting as a movable contact.

1/1

GUTOV, Ye. I.

JPRS 55890
18 Aug 72

OPTIMIZATION OF THE PROCESS OF TUNGSTEN TRIOXIDE REDUCTION

UDC 62-501.21

The reduction of tungsten trioxide (WO_3) with hydrogen in furnaces with a rotating tube is a complex multifactor process that is virtually not amenable to determinant description. To construct a statistical model for it, it is necessary to solve the question of how many and what kind of factors should be taken into consideration. A formal (intuitive) choice may lead to an increase in the number of tests in the selective experiment and to ineffective results in investigating the surface of response.

We used a statistical method of formalization of a priori information, which permits evaluating the comparative influence of the individual independent variables (factors) on the process of reduction [1].

A group of seven specialists has suggested ranking the X_i (i = 1, 2, ..., 17) variables: X_1 is the amount of WO_3 immersed into the furnace, X_2 is the amount of hydrogen fed into the furnace, X_3 is the temperature of the third zone, X_4 is the temperature of the second zone, X_5 is the temperature of the first zone, X_6 is the angle of slope of the furnace tube, X_7 is the rate of rotation of the furnace tube, X_8 is the humidity of the hydrogen supplied, X_9 is the temperature of heating the hydrogen, X_{10} is the temperature of heating the WO_3, X_{11} is the number of impacts of the temperature of the heating mechanism, X_{12} is the grain size of the innerand WO_3, X_{13} is the bulk density of the grain size of the shaking the WO_3, X_{14} is the amount of oxygen in the WO_3, X_{15} is the amount of molybdenum in the WO_3, X_{16} is the length of the furnace condenser, X_{17} is the number of furnace temperature zones in accordance with the degree of

- 38 -

GUTOROV, VE. 1.

STPS 51805

6-73

XIII-5.   ORIENTATION FUNCTION OF THE PROPERTIES OF GALLIUM ARSENIDE FILMS
OBTAINED BY THE METHOD OF LIQUID EPITAXY

[Article by Yu. B. Bolkhovityanov, R. I. Bolkhovityaneva, S. I. Gromov, Ye. I.
Gutorov, P. L. Mel'nikov, Novosibirsk; Novosibirsk; Sibirskiy po Protsess;
sam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17
June 1972, p 186]

    Studies were made of the electron concentration and mobility in gallium
arsenide films as a function of the substrate orientation. The substrate ori-
entation was varied from (100) to (011) every 5°. It was discovered that the
electron concentration in the films in the entire range of deviations varies
by no more than 3 times. The highest rate of variation of the film properties
is observed for deviation of the substrates from (111) both to (011) and to
(100) by small angles. On deviation of the substrates from (100) to (111) by
5-10°, the electrophysical properties of the film vary insignificantly.

- 161 -

USSR

UDC 669.16:620.183

BRAYNIN, I. YE., and GUTOROVA, V. L.

"Mechanism of the Effect of Titanium on the Structure and Properties of Conversion Pig Iron Castings"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 72, pp 139-143

Abstract: Titanium was added to molten iron at 1200 and 1300°C in the form of compact titanium (99.7% Ti) and grade TG-ChM) titanium sponge (96-98% Ti). The resulting pig iron, containing 0.5-0.8% Ti, was studied and compared with samples of the same iron without titanium. It was established that there is an ambiguous effect of both forms of titanium on the size and nature of the graphite plates in the castings. Compact titanium facilitates development of an interdendritic spot and fine-plate graphite. The addition of titanium sponge increases the length of graphite inclusions, caused by the entry of a significant amount of hydrogen. The coagulation of graphite plates in the modified iron has been linked with the interaction of hydrogen with oxygen, adsorbed on submicroscopic graphite particles. This leads to removal of oxides from the surface layers, promotes segregation and achievement of critical sizes, and increases the rate of growth of the graphite particles.
1/2

USSR

BRAYNIN, I. YE., and GUTOROVA, V. L., Izvestiya Akademii Nauk SSSR, No 2,
Mar-Apr 72, pp 139-143

The resulting size increase of the graphite in the ferrite constituent
of the iron treated with titanium sponge has a favorable effect on the iron's
properties in determining the durability of heavy sheet molds and increasing
their service life. Five figures, 13 bibliographic references.

2/2

USSR

UDC: 669.131.6-41:...75

BRAYNIN, I.YE., ...V.L., LUISTAK, V.G., ..., V.P., ... YA.P.,
ZHUNEVA, M.D., and CHURSINA, Z.S., Donets Polytechnic Institute ......
Scientific-Research Institute of Ferrous Metallurgy

"Nature of Nonmetallic Inclusions in Titanium-Modified Cast Iron"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5,
1970, pp 141-143

Abstract: Investigations were conducted of the nature of nonmetallic inclusions
in cast iron with vari... (from 0.05 to 0.75%) titanium supplements to determine
the role of the latter .... used with iron
used for casting of large-.... .... from ingot molds,
modified with brand TG-OAM (96-98% Ti) tita......... ......, and from cast iron ingots,
remelted in an induction furnace from conversion cast iron .... following
composition (%): 4.14 C, 0.67 Si, 0.42 Mn, 0.041 S, 0.074 P. .... titanium
(99.7% pure) was introduced into the molten cast iron at a temperature of 1400°C.
The nonmetallic inclusions were studied by x-ray structural analysis of electro-
lytically-separated deposits and also by a local x-ray method directly on slides.
Metallographic investigation of the experimental samples indicated that the
addition of titanium caused a whole series of inclusions, the amount of which
1/2

USSR

BRAYNIN, I.YE., etal, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 141-143

increases with a rise in titanium content. The following compounds were detected: TiC, FeO TiO$_2$, TiO$_2$, Ti$_3$S$_4$, TiMn$_2$, Ti$_2$O$_3$, Ti (C, N); titanium nitrides in pure form were seldom encountered. The absence of contact of titanium compounds with graphite and enlargement of dimensions of the latter were established. This confirms the work of V.L. Gutorova, in which it was postulated that nonmetallic titanium inclusions are not graphitization centers. The increased resistance of large-mass ingot molds, cast from basic blast-furnace cast iron modified with titanium sponge, is associated with the enlargement of graphite flakes and with the increase in the ferrite content in the metal base caused by the indirect action of titanium, (binding oxygen and nitrogen into stable compounds) and by the action of hydrogen, introduced by the titanium sponge.

2/2

UNCLASSIFIED

TITLE--SOLUTION OF TWO DIMENSIONAL PROBLEMS CONCERNING ELASTIC PLASTIC STRAINS AND CREEP, USING A COMPUTER -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-AMELYANCHIK, A.V., GUTOROVA, YU.S., LAPTEVA, V.T.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 58-62

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ELASTICITY THEORY, MATHEMATIC EXPRESSION, COMPUTER APPLICATION, STRAIN, STRESS ANALYSIS, CYLINDRIC SHELL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0111

STEP NO--UR/3663/70/002/000/0058/0062

CIRC ACCESSION NO--AP0123883
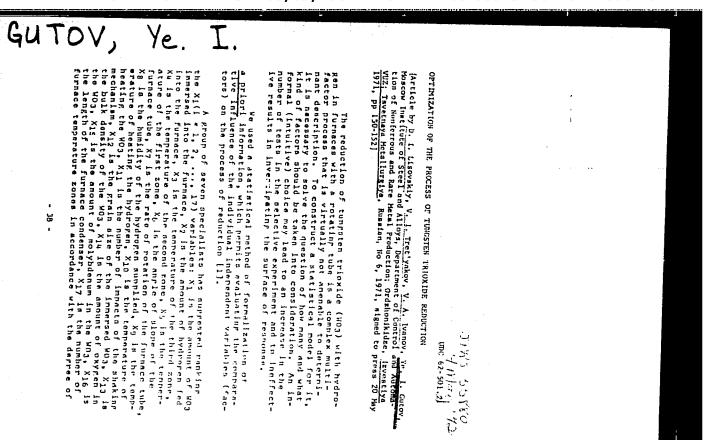
UNCLASSIFIED

CIRC ACCESSION NO--AP0123383   UNCLASSIFIED   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A METHOD AND
PROGRAM FOR CALCULATING THE TWO DIMENSIONAL STRESS STRAIN FIELDS UNDER
ELASTIC AND ELASTIC PLASTIC STRAINS AND STEADY STATE CREEP. AN
ALLOWANCE IS MADE FOR STRESS CONCENTRATIONS, REAL DEFORMATION CURVES,
AND DEPENDENCE OF MATERIAL CHARACTERISTICS ON TEMPERATURE. PLATES WITH
AN ARBITRARY CONTOUR ARE CONSIDERED IN THE POLAR COORDINATE SYSTEM. AS
AN EXAMPLE, A CALCULATION IS MADE OF A STRESS FIELD AROUND A HOLE IN A
CYLINDRICAL SHELL SUBJECTED TO ELASTIC PLASTIC STRAINS, WITH ALLOWANCE
FOR THE LOADING HISTORY.   FACILITY: TSENTRAL'NYI
NAUCHNO-ISSLEDOVATEL'SKII INSTITUT TEKHNOLOGII I MASHINOSTROENIIA,
MOSCOW, USSR.

UNCLASSIFIED

GUTOV, Ye. I.

OPTIMIZATION OF THE PROCESS OF TUNGSTEN TRIOXIDE REDUCTION

The reduction of tungsten trioxide (WO_3) with hydro-
gen in furnaces with a rotating tube is a complex multi-
factor process that is virtually not amenable to determi-
nant description. To construct a statistical model for it,
it is necessary to solve the question of how many and what
kind of factors should be taken into consideration. An in-
formal (intuitive) choice may lead to an increase in the
number of tests in the selective experiment and to ineffect-
ive results in investigating the surface of response.

We used a statistical method of formalization of
a priori information, which permits evaluating the compara-
tive influence of the individual independent variables (fac-
tors) on the process of reduction [1].

A group of seven specialists has suggested ranking
the X_i ($i = 1, 2, ..., 17$) variables: X_1 is the amount of WO_3
immersed into the furnace, X_2 is the amount of hydrogen fed
into the furnace, X_3 is the temperature of the third zone,
X_4 is the temperature of the second zone, X_5 is the temper-
ature of the first zone, X_6 is the angle of slope of the
furnace tube, X_7 is the rate of rotation of the furnace tube,
X_8 is the humidity of the hydrogen supplied, X_9 is the temp-
erature of heating the hydrogen, X_{10} is the temperature of
heating the WO_3, X_{11} is the number of the temperature of
mechanism, X_{12} is the grain size of the immersed WO_3, X_{13} is
the bulk density of the WO_3, X_{14} is the amount of oxygen in
the WO_3, X_{15} is the amount of impacts of the shaking
the WO_3, X_{16} is the amount of molybdenum in the WO_3, X_{16} is
the length of the furnace condenser, X_{17} is the number of
furnace temperature zones in accordance with the degree of

- 38 -

1/2   040   UNCLASSIFIED   PROCESSING DATE--11DEC70
TITLE--PLASMA PULSE SOURCE OF ELECTRONS -U-

AUTHOR-(03)-KREYNDEL, YU.YE., GUTOVA, L.A., NIKITINSKIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ RADIOELEKTRONIKA (USSR), VOL. 13, NO. 1, P.77-9 (JAN.
   1970)
DATE PUBLISHED------JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON PLASMA, PLASMA GENERATOR, CURRENT DENSITY, COLD
   CATHODE, MAGNETIC FIELD EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1423   STEP NO--UR/0452/70/013/001/0077/0079

CIRC ACCESSION NO--AP0138433
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0138433

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIBES THE CONSTRUCTION AND THE
CHARACTERISTICS OF A PULSE TYPE SOURCE OF THE ELECTRONS, EMPLOYING THE
PLASMOTRON PRINCIPLE, BUT HAVING THE THERMIONIC CATHODE AND THE
INTERMEDIATE ANODE REPLACED BY A PENNING TUBE WITH A COLD CATHODE.
RESULTS ARE GIVEN FOR THE OUTPUT CURRENT AND FOR THE EXTRACTOR CURRENT
VERSUS THE EXTRACTION POTENTIAL, WHEN THE DISCHARGE CURRENT IS 3.5 A.
MEASUREMENTS WERE MADE WITH 10 MUSEC WIDE PULSE, REPEATING AT 50 HZ.
THE CATHODE ANODE POTENTIAL WAS 700 V. THE H.F. MODULATION OF THE
OUTPUT CURRENT WAS BELOW 20PERCENT. THE BEAM CURRENT DENSITY
DISTRIBUTION IS SHOWN AS A FUNCTION OF RADIUS, USING MAGNETIC FOCUSING;
THE CURRENT DENSITY AT THE CENTRE IS 30 A PER CM PRIME2.

UNCLASSIFIED

USSR

UDC 624.07:534.1

GUTOVSKIY, F. V., IL'IN, V. P.

"Study of the Deformed State and Rigidity of Bent Curved Tubes of Large Curvature"

Sb. tr. Leningr. inzh.-stroit. in-t (Collection of Works of Leningrad Structural Engineering Institute), 1971, No. 68, pp 35-42 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V453)

Translation: The problem of the bending of a tube of large curvature is solved. The equations of the theory of shells expressed in displacements are solved by the small parameter method using the ratio r/ρ as the small parameter, where r is the radius of the cross section and ρ is the radius of the longitudinal axis of the tube, and the second approximation is considered. Equations of the second approximation are solved keeping nonlinear terms in the right sides determined by quadratures and the products of the functions and their derivatives found in the first approximation, which had not been considered previously. Deformations of the transverse cross section and the coefficient for the lowering of rigidity of tubes of different curvature and reduced length are calculated in the first and second approximations. The limits of application of the approximate theory based on the assumption of a small longitudinal curvature for determining the deformation state and the coefficient for the drop in rigidity of curved tubes are established. V. I. Baulin.

1/1

AA0040692 G·   Gutovskiy, BP UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, /-70
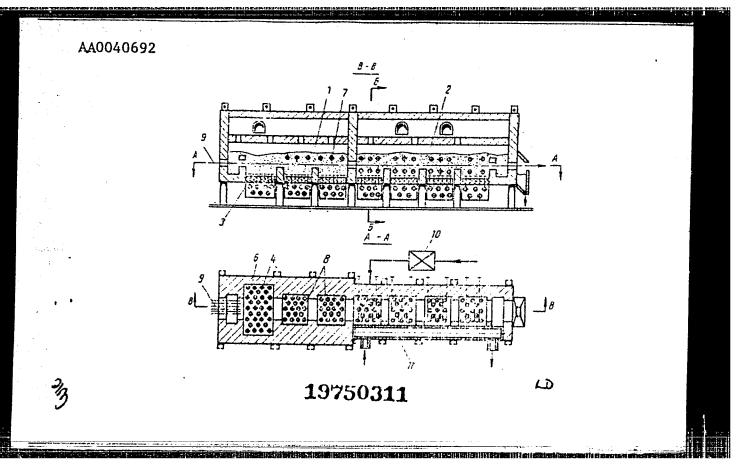
240728 COMPARTMENT FURNACE intensifies the heat
treatment operation in that each section of
its gas distributor grid has independent headers to
activate part of its lids or caps. The bottoms of
the heating (1) and cooling (2) compartments
comprise the grid sections (3) to support crushed
corundum, firebrick etc, the first section grid (6)
rather wider than those following so that the gas
can burn well below the level of the wire passing
through and provide enough heat to raise the metal
to scale temperatures. The gas (short of air) burns
and forms a de-oxidising medium, with additional
air piped in (7) to finally burn off the gas above
the wire level. When working small gauge wire, air
preheated in the stove (10) is fed in through the
grid caps. When working average gauge material,
heat can be removed by the air cooling tube (11),
whilst at heavy gauges a water-cooling tube can
be inserted.

15.12.66 as 1120453/22-1.GUTOVSKII.B.P.et al(14.8.69)
Bul 13/1.4.69. Class 18c, 31a^1. Int.Cl.C21d, F27b.

19750310

AA0040692

19750311

AA0040692

AUTHORS: Gutovskiy, B. P.; Orlov, N. A.; Berdichevskiy, A. M.;
           Baskakov, A. P.; Zubov, V. Ya.; Grachev, S. V.;
           Berg, B. V.; Zavarov, A. S.; Burkov, G. G.;
           Krasil'nikov, L. A.; and Sokolov, N. V.

19750312

2/3

USSR   UDC 669.046.5

KRAMAROV, A. D., ZAKHAROV, M. M., and GUTOVSKIY, I. B.

"Removal of Oxygen From Steel in Deoxidation by Manganese, Silicon, and Aluminum"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS). (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 22-29

Translation of Abstract: Data are presented on an investigation of the oxygen removal process from low-carbon steel in deoxidation by manganese, silicon and aluminum, separately and jointly. 6 figures, 6 references.

1/1

USSR

UDC 621.785.1:62-412:669.15

BRUK, YU. G., STANOVOY, V. I., GUTOVSKIY, I. B., and PUGOVKIN, A. U.

"Investigation of Heating Steel NN3B (OKh18N5G12AB) Ingots"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 10, Oct 73, pp 39-40

Abstract: Steel NN3B can be greatly strengthened at 550-800° C and forged at 950-1250° C, but its deformability at higher temperatures is sharply diminished, and tests were conducted to determine the soak times and temperatures and heating rates to produce the highest forging temperature and test metal structure. Tests were made by heating at an arbitrary rate, soaking for a period, heating to a higher temperature at an arbitrary rate and soaking. The short coming of this method was that temperatures measured were furnace temperatures and not ingot temperature. Therefore, holes were drilled in test ingots for placement of thermocouples. Tests showed that at low furnace temperatures (650° C), the differences in furnace and ingot temperatures is high (200-350° C over a 7-hour period). At a furnace temperature of 1250° C this difference is only 60-80° C. When the temperature of the furnace was increased from 650-900° C the ingot temperature rise was much faster than at 650° C. Tests were also conducted for the fastest possible heating rates (400-500° C/hr) which showed that during
1/2
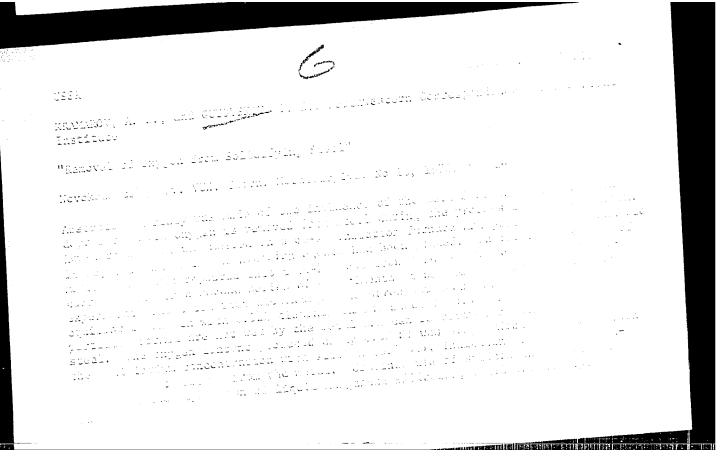
USSR

BRUK, YU. G., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 10, Oc 73, pp 39-40
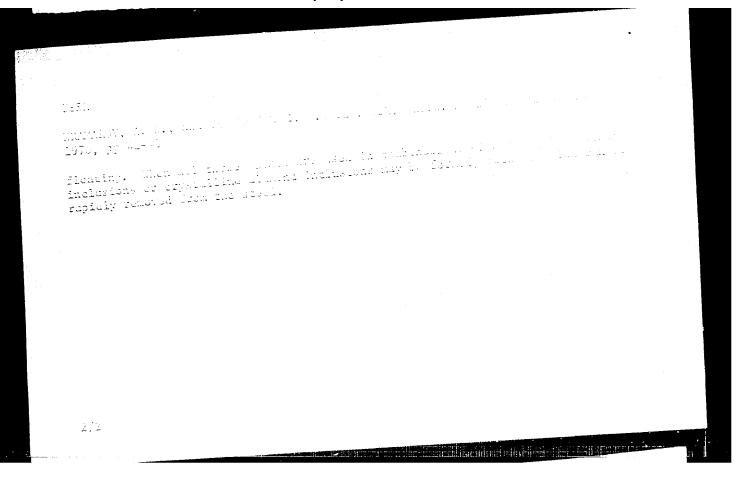
certain heating periods the temperature drop along ingot length was 650° C, which promoted development of numerous internal defects. The final conclusions for the heating of steel NN3B were to soak ingots at 650° C for 4.5 hours, 900° C for eight hours with final heating to a furnace temperature of 1300° C (ingot temperatures -- $1220-1240^{\circ}$ C). This procedure increased the number of forging operations per heating, reduced the number of heatings, and reduced the number of cracks and scrap ingots by four times. Three figures, one bibliographic reference.

2/2

- 40 -

USSR

KIULANOV, A. ..., and ...

Institute

"Removal of ..."

November ...

USSR.

Rudashev, A. [...]
1970, [...]

Fleming. When [...] inclusions [...] inclusions or expelling [...] inclusions may be [...] rapidly removed from the steel.

172

"Theory of Analysis and Synthesis of Alloys and Materials Inhomogeneous As to Physical Properties"

Abstract: The article singles out a class of inhomogeneous objects with physical properties which are linearly described by parameter-dependent specific physical quantities of individual homogeneous parts of an object, and suggests a theory for their analysis and synthesis which is common to all these objects. Examples of objects of this class can be multilayer, particularly thermomagnetic materials, certain powdered materials and multiphase alloys. The purpose of the article reduces to finding methods for the exact and approximate determination of the relative content of homogeneous parts of an object from its experimentally determined or given averaged property values. The procedure is based on the discrete representation of the quantities

under consideration and their vector description. The results can be used for the analysis and synthesis of inhomogeneous materials and alloys, particularly for thermal physicochemical analysis and kinetic-study data analysis, for the synthesis of multilayer and powdered materials.

2/2

USSR

UDC: 621.317.44

GUTOVSKIY, I. G., ZHITSKOVA, Z. A., LAVROV, V. P., PEVZNER, G. S., SAVVIN, A. N., KELEBNIKOV, S. P.

"A Device for Determining the Magnetization Curve and Hysteresis Loops of Magnetic Materials"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329486, Division G, filed 8 Apr 68, published 9 Feb 72, p 182

Translation: This Author's Certificate introduces a device for determining the magnetization curve and hysteresis loops of magnetic materials. The device contains a measurement and a magnetizing coil for the specimen to be studied, a fluxmeter (in the form of an integrating amplifier), an adder, an integrating amplifier for the magnetization circuit, a power amplifier, a calibrated resistor, and a registration instrument. As a distinguishing feature of the patent, the device is designed for increased precision and speed, and for automation and programming of the measurement process. For this purpose it is equipped with a program input controller of the change in magnetic flux in the form of a time-variable voltage controller. The

1/2

- 124 -

USSR

GUTOVSKIY, I. G. et al., USSR Author's Certificate No 329486

device also includes a switch. One input of the adder is connected to the voltage controller, and the other adder input is connected to the output of the magnetic fluxmeter. The output of the adder is connected to the integrating amplifier of the magnetization circuit through the switch. The controlling input of the switch is connected to the output of the adder and to the controlling input of the voltage controller through a logic circuit of the "exclusive OR" or "equivalence" type.

2/2

USSR   UDC: 536.581

YURSHEVICH, V. V., GUTOVSKIY, O. K., RANKIS, G. Zh.

"Laboratory Thermostat for the 68-670° K Range.   Methods of Measurement and Stabilization of Temperature"

Vopr. Elektrodinamiki i Teorii Tsepey. Vyp. 6 [Problems of Electrodynamics and the Theory of Circuits. 6th Edition -- Collection of Works], Riga, 1972, pp 103-112 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 3, 1973, Abstract No 3.32.840), by V. S. K.

Translation: Structural diagrams are presented for thermostat for temperatures below -196° C; from +10° to -196° C; from +30 to +400° C, as well as structural diagrams of their parts (evaporator voltage regulator, manostat). A platinum resistance thermometer made in the form of a spiral placed in a capillary of Pyrex glass is used to measure temperatures from -196° C to +400° C. The thermal inertial of the thermometer is not over 0.5-0.8 s. The calibration of the thermometer after aging is based on the melting point of ice and the boiling point of water. The temperature measurement error is not over ±0.02° C. Stabilization of temperature in the -180° C to +10° C interval is achieved by positional regulation and depends on the intensity of the flow of liquid nitrogen vapor, determined by the power dissipated by the evaporator in a standard metal Dewar vessel. Temperatures
1/2

USSR

Yurshevich, V. V., Gutovskiy, O. K., Rankis, G. Zh., Vopr. Elektrodinamiki
i Teorii Tsepey. Vyp. 6, Riga, 1972, pp 103-112.

read from the logometer scale of a radio-isotope thermal regulator used for
temperature stabilization.   Liquid nitrogen is used directly to produce a
temperature of about -196° C. Temperatures below -196° C are achieved by
evacuation of nitrogen vapors.   4 figures, 7 biblio. refs.

2/2

USSR

UDC: 621.317.411.2

YURSHEVICH, V. V., RANKIS, G. Zh., GUTOVSKIY, O. K.

"Investigation of the Magnetic Spectra of Ferrites Over a Wide Range of Frequencies and Temperatures"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 153-154 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A365)

Translation: A procedure and installation are developed for taking the magnetic spectra of ferrites in the frequency range from 0.1 to 10,000 MHz and at temperatures from -200 to +400°C. Measurements were made on toroidal specimens for 50 Ω coaxial line. A system is described for maintaining temperature with a precision of ±0.5°C. On frequencies above 50 MHz, permeability was measured with respect to the input impedance of a short-circuited section of coaxial line, while a Q-meter was used on frequencies below 50 MHz. It was found that the behavior of the spectrum for nickel-zinc ferrites changes at temperatures below -100°C: the dispersion spectrum changes to a triple dispersion spectrum. E. L.

1/1

USSR   UDC 669.293.5.018.8.669.977

BORISOV, A. Ya., GUTS, A. V., SOKOLOVA, G. V.

"Absorption of Gases by Niobium Materials in the Stream of an Argon Plasma"

Metallovedeniye[Metal Science -- Collection of Works], No. 14, Leningrad, Sudo-stroyeniye Press, 1970, pp. 227-232. (Translated from Referativnyy Zhurnal Me-tallurgiya, No. 5, 1971, Abstract No. 5 I738 by the authors).

Translation: The influence of temperature, holding time, and content of impurities of active gases in the stream of an argon plasma on the corrosion resistance of Nb alloys is studied. It is established that in the stream of an argon plasma, intensive interaction of the metal with the active gases present in the Ar occurs. The composition of the reaction products formed on the surface of the metal as a result of its interaction with gases at 1300 and 1500° is determined. 4 figs; 2 tables; 7 biblio refs.

1/1

1/3   013

TITLE--REARRANGEMENTS OF ADAMANTANE DERIVATIVES -U-

AUTHOR-(02)-GUTS, S.S., STEPANOV, F.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 434-9

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADAMANTANE, ELECTROLYSIS, METHANOL, BROMINATED ORGANIC
   COMPOUND, CHLORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0818   STEP NO--UR/0062/70/000/002/0434/0439

CIRC ACCESSION NO--AP0119723
                            UNCLASSIFIED

CIRC ACCESSION NO--AP0119723
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. IN THE KOCH REACTION IN CONCD. H
SUB2 SO SUB4, THE CARBONIUM ION (I) FROM ADAMANTANE IS KINETICALLY
INDEPENDENT AND REACTS VIA TRANSITION STATE II.   IN ELECTROLYSIS IN
MEOH, A SOLVATED ION IS FORMED AND, IN THIS ION, THE POS. CHARGE IS
PARTLY TRANSFERRED TO THE O ATOM, ACCOUNTING FOR HINDRANCE OF HYDRIDE
TRANSFER. THIS ION IS STABILIZED BY LOSS OF H PRIME POSITIVE TO FORM
3,METHOXYHOMOADAMANTANE; THE SAME TRANSITION STATE OCCURS IN PREPN. OF
THE CARBOXYLIC ACID BY THE KOCH REACTION FROM 3,BROMO DERIVS. AND
1,BROMO DERIVS. IN WHICH A MIXT. OF 60-70PERCENT
HOMOADAMANTANE,1,CARBOXYLIC ACID (III) AND 20-30PERCENT
1,(BROMOMETHYL)ADAMANTANE (IV) IS FORMED.   IV DOES NOT ENTER THE KOCH
REACTION AND IS FORMED IRREVERSIBLY FROM STABILIZATION OF THE CARBONIUM
ION BY BR PRIME NEGATIVE AT THE METHYLENE GROUP. TO 70 ML CONCD. H SUB2
SO SUB4 WERE ADDED AT ROOM TEMP. SIMULTANEOUSLY 3 G
1,BROMOHOMOADAMANTANE IN HEXANE AND 8 ML HCO SUB2 H AND THE MIXT. KEPT 2
HR TO YIELD 63PERCENT III, M. 160-2DEGREES, AND 23PERCENT IV, M.
44-5.5DEGREES.   3,BROMOHOMOADAMANTANE SIMILAR GAVE 67PERCENT III AND
29PERCENT IV; 3,HYDROXYHOMOADAMANTANE GAVE 98PERCENT III, WHICH KEPT IN
MECH WITH H SUB2 SO SUB4 OVERNIGHT, THEN KEPT WITH H SUB2 O 5 DAYS, GAVE
73PERCENT 3,ACETAMIDOHOMOADAMANTANE, M. 136-7DEGREES. THIS AND CONCD.
HCL HEATED 2 HR GAVE 49PERCENT 1,(CHLOROMETHYL)ADAMANTANE, B SUB4
85-8DEGREES, AND 50PERCENT 3,HYDROXYHOMOADAMANTANE, M. 274-5DEGREES.

UNCLASSIFIED

CIRC ACCESSION NO--AP0119723
ABSTRACT/EXTRACT--SIMILAR HYDROLYSIS, BUT WITH NAOH IN DIETHYLENE GLYCOL,
GAVE IN 6 HR REFLUXING, 95PERCENT 3,AMINOHOMOADAMANTANE,
1,BROMOHOMOADAMANTANE IN MECH KEPT 1 DAY WITH CONCD. H SUB2 SO SUB4 GAVE
83PERCENT 1,ACETAMIDOHOMOADAMANTANE, M. 158-60DEGREES, WHICH, HEATED 2
HR WITH CONCD. HCL, GAVE 98PERCENT 1,CHLOROHOMOADAMANTANE, M.
163-5DEGREES, WHILE HYDROLYSIS, WITH NAOH IN DIETHYLENE GLYCOL 6 HR,
GAVE 1,AMINOHOMOADAMANTANE. HOMOADAMANTANE,1,CARBONYL CHLORIDE HEATED
WITH ALCL SUB3 AT 190DEGREES DECOMPD. TO 1,CHLOROHOMOADAMANTANE. AG
SALT OF III TREATED WITH BR,CCL SUB4 AT 60DEGREES GAVE 12PERCENT
1,BROMOHOMOADAMANTANE. III AND HGO IN CCL SUB4 GAVE ON TREATMENT WITH
BR AT 76DEGREES 1.5 HR 25PERCENT 1,BROMOHOMOADAMANTANE.
FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UDC 621.181.001.5

USSR

GRISHIN, A. D., GUTSALO, G. I., SHTAL'MAN, S. G., ABRYUTIN, A. A., DRONOV,
L. A., SOLOMONOV, V. M., KROL', A. Ya. and BRITVIN, O. V., (all engineers);
and Candidate of Technical Sciences VIKHREV, Yu. V., ORGRES-VTI-Kostromskaya
GRES

"Results of a Study of the Combustion and Temperature Regime of the Lower
Radiation Section of the TGMP-114 Boiler"

Abstract: Earlier gas-mazut boilers of this general type were not completely
satisfactory on account of the low reliability of the heating surfaces (mainly
the lower radiation section) and the great heat flow in the combustion chamber.

This difficulty has been corrected in the new main-series supercritical
pressure TGMP-114 boiler by reducing the number of boilers (from 8 to 6),
securing maximal removal of the extreme burners from the side walls, and
use of recirculation of cold smoke gases into the lower part of the furnace
chamber.

The direct-flow TGMP-114 boiler has an output of 950 t/hr, with steam parameters
of 255 kg/cm^2 and 565/570°C.   Analysis of operational data on chemical control

i 77

USSR

GRISHIN, A. D., et al., Teploenergetika, No 3, 1973, pp 43-46

shows that in 1971 iron content of feed water was 10-15 μg/kg, 15-20 μg/kg the previous year, and 20-50 μg/kg during the start-up period in 1969, with high content of 100-150 μg/kg in individual cases. These facts point up the formation of iron oxide deposits as a basic cause of the external corrosion of the screening pipes of the lower radiation section, and emphasize the necessity of water control and chemical cleansing.

2/2

TITLE--USE OF STATISTICAL ANALYSIS FOR DETERMINATION OF HYDROGEOCHEMICAL
   INDEXES OF POTENTIAL OIL GAS CAPACITY IN LOCAL STRUCTURES -U-

AUTHOR--GUTSALO, L.K.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (2), 134-40

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--PETROLEUM DEPOSIT, STATISTICAL ANALYSIS, GEOLOGY, PETROLEUM
   PRODUCTION, CRUDE OIL, NATURAL GAS, COPPER, GROUND WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1552   STEP NO--UR/0011/70/000/002/0134/0140

CIRC ACCESSION NO--AP0118535
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0118535

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF PETROLEUM AND GAS
  DEPOSITS IN CARBONIFEROUS FORMATION ON DNIEPER DONETS SYNCLINE ON THE
  ACCUMULATIONS OF ELEMENTS AND COMPDS. IN FORMATION WATERS CONTACTING OIL
  AND GAS DEPOSITS WAS STUDIED BY USING CU. THE POSSIBLE USE OF CU AS
  HYDROGEOCHEM. INDICATOR OF PETROLIFEROUS CAPACITY OF LOCAL STRUCTURES IS
  DISCUSSED IN THE LITERATURE FOR THE 1ST TIME. THE DISTRIBUTION OF CU
  IN FORMATION WATERS FOLLOWED THE NORMAL LAW. EMPIRICAL SERIES OF CU
  DISTRIBUTION IN FORMAITON WATERS OF A NATURAL BACKGROUND AND IN WATERS,
  REALTED TO OIL AND GAS DEPOSITS, ARE STATISTICALLY OF DIFFERENT CLASSES.
  ELEVATED CONTENT OF CU (IN COMPARISON WITH NATURAL BACKGROUND) WAS
  OBSD. IN FORMATION WATERS RELATED DIRECTLY TO HYDROCARBON DEPOSITS. THE
  NORMAL LAW OF CU DISTRIBUTION IN FORMATION WATERS INDICATES THE PRESENCE
  IN THE WATER ROCK SYSTEM OF CONDITIONS CLOSE TO CHEM. EQUIL. AN
  ELEVATED ACCUMULATION OF CU AND MN IN FORMATION WATERS NEAR OIL AND GAS
  DEPOSITS WAS ATTRIBUTED TO RFJOX PROCESSES IN THE ZONE OF HALOES
  (ANOMALIES) OF HYDROCARBON GASES AROUND DEPOSIT.   FACILITY:
  INST. GEOL. GEOKHIM. GORYUCH. ISKOP., LVOV, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--HYDROCARBON FORMALDEHYDE RESINS -U-

AUTHOR-(02)-GUTSALYUK, V.G., SALTYBAYEV, D.K.

COUNTRY OF INFO--USSR

SOURCE--TR. INST. KHIM. NAUK, AKAD. NAUK KAZ. SSR 1970, 28, 3-23

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HYDROCARBON RESIN, FORMALDEHYDE, CONDENSATION REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0799   STEP NO--UR/0000/70/028/000/0003/0023

CIRC ACCESSION NO--AT0132897
                    UNCLASSIFIED

2/2   007   UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AT0132897
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 112 REFS. ON
  CONDENSATION OF AROMATIC HYDROCARBONS WITH CH SUB2 O.

UNCLASSIFIED

1/2   016   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--SYNTHESIS OF AROMATIC POLYAMIDES BASED ON 2,4 AND 2,2 PRIME
  DIAMINOBIPHENYLS -U-
AUTHOR-(04)-KOLESNIKOV, G.S., FEDOTOVA, O.YA., MATVELASHVILI, G.S.,
  GUTSALYUK, E.V.
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDN., SER. A 1970, 12(3), 528-35

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYAMIDE COMPOUND, AMINE, POLYNUCLEAR HYDROCARBON, THERMAL
  STABILITY, POLYMER STRUCTURE, POLYCONDENSATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1186   STEP NO--UR/0459/70/012/003/0528/0535

CIRC ACCESSION NO--AP0116651
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0116651
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AROMATIC POLYAMIDES (I) WERE
  PREPD. BY LOW TEMP. POLYCONDENSATION IN ACNME SUB2 OF 2,2 PRIME
  DIAMINOBIPHENYL AND 2,4,DIAMINOBIPHENYL AND SEVERAL AROMATIC ACID
  CHLORIDES, E.G., ISOPHTHALOYL AND TEREPHTHALOYL CHLORIDES AND
  2,6,PYRIDINEDICARBOXYLIC ACID DICHLORIDE. I HAD SOFTENING POINTS OF
  110-300DEGREES. POLY(2,4,BIPHENYLYLENE AMIDES) AND POLY(2,2 PRIME
  BIPHENYLYLENE AMIDES) (E.G. II) EXHIBITED SUPERIOR THERMAL STABILITY AND
  RESISTANCE TO OXIDATIVE THERMAL DEGRADATION. THE EFFECTS OF POLYMER
  STRUCTURE ON PHYSICOMECH. AND CHEM. PROPERTIES ARE DISCUSSED.
  FACILITY: MOSK. KHIM. TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

Entomology

USSR   UDC 595.771

GUTSEVICH, A. V., Zoological Institute, Academy of Sciences USSR, Leningrad

"A Subgenus of Bloodsucking Mosquitoes of the Genus Aedes New for the USSR
Fauna - Neomelaniconion Newst. (Banksinella Theob.) (Diptera, Culicidae)"

Leningrad, Entomologicheskoye Obozreniye, No 1, 1973, pp 176-177

Abstract: Contrary to the author's initial assumption that the new mosquito
species Aedes aureus Cuts. found in 1955 in the Maritime Territory belongs to
the subgenus Aedes, he now assigns it to the subgenus Neomelaniconion Newstead,
1907, because of numerous morphological similarities to the only Neomelaniconion
species known in Asia - Aedes lineatopennis. Among the substantial differences
between A. aureus and mosquitoes of the subgenus Aedes are the narrow scales in
the center of the occiput and fairly long palpi of the females (mostly wide and
very short, respectively, in the subgenus Aedes).

1/1

USSR

GUTSEVICH, A. V., and PENDIKOVA, YE. G., Zoological Institue, Academy of Sciences USSR, Leningrad, and Omsk City Epidemiological Station

"The Bloodsucking Mosquito Aedes (Ochlerotatus) albescens Edw. (Diptera, Culicidae) as a Distinct Species"

Abstract: Studies were carried out on A. albescens Edw. to determine whether or not it is a species distinct from A. lepidonotus Edw. rather than a synonym, and to ascertain its position with respect to A. subdiversus Mart. Collections at the Zoological Institute and Omsk City Epidemiological station included no A. lepidonotus, which is a Mediterranean mosquito easily identified by presence of scales on the postscutellum, lacking in the other 2 species. Female A. albescens and A. subdiversus were found to be morphologicall different, but differences in males and larvae remain undetermined. Though these 2 species are sympatric. A. subdiversus is found further west (to the Volga), east (to the Transvaika), and south (to sourthern Kazakh SSR regions).

1/1

USSR

UDC 595.771

GUTSEVICH, A. V., and GLUKHOVA, V. M.,

Metody Sbora i Izucheniya Krovososushchikh Mokretsov (Methods of Collecting and Studying Blood-Sicking Biting Midges), Leningrad, "Nauka," 1970, 104 pp

Translation: General characteristics of biting midges and differences between then and other blood-sucking Diptera as adults are given. Data are cited on the distribution and biology of biting midges, on the damage caused by them, on methods of collecting and countings adults, and on ways to keep and work with them. Developmental phases, morphology, and taxonomic characteristics are given, and tables of subfamilies, genera, and species for larval and pupal. Main features of the biology of immature phases and methods for collecting, working with, and preserving biting midges are described. Methods of cultivating sand flies under laboratory conditions are considered. This manual is intended for zoologists, parasitologists, entomologists, workers in medical and veterinary institutions, and students of pedagogical, medical, and veterinary higher educational institutions.

1/1

TITLE--DISCOVERY OF THE MOSQUITO AEDES THIBAULTI, DIPTERA, CULICIDAE, IN
   THE SOVIET UNION -U-

AUTHOR-(02)-GUTSEVICH, A.V., GURITSKAYA, V.V.

COUNTRY OF INFO--USSR

SOURCE--PARAZITOLOGIYA 4(1): 72-73. ILLUS. 1970

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MOSQUITO, ANATOMY, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FILME NO-----FD70/605014/C03 STEP NO--UR/9057/70/004/001/0072/0073

CIRC ACCESSION NO--AP0140469
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0140469
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MALE TERMINALIA OF A MOSQUITO
WHICH WAS PRELIMINARILY IDENTIFIED AS A. (OCHLEROTATUS) THIBAULTI DYAR
ET KUAB IS DESCRIBED. THIS SPECIES IS SPREAD IN THE SOUTH EAST USA AND
HITHERTO HAS NEVER BEEN FOUND IN PALAEARCTIC.   FACILITY: ZOOL.
INST., ACAD. SCI. USSR, LENINGRAD, USSR.

UNCLASSIFIED

USSR   UDC: 51

GUTSHTEYN, A. I. M.

"Cybernetics in Economic Regulation of Production"

Kibernetika v Ekonomicheskom Regulirovanii Proizvodstva [English version above],
Moscow, Ekonomika Press, 1972, 208 pp (Translated from Referativnyy Zhurnal
Kibernetika, No 11, 1972, Abstract No 11V484K)

Translation: Chapter I. The problem of control and economic regulation of
production. Chapter II. Information and the study of production organization.
Chapter III. Adaptation processes in economic behavior. Chapter IV. Struc-
tural-functional organization of the control system and mechanisms of eocnomic
regulation of production. Chapter V. Economic regulation as a process of
adaptation of production.

USSR   UDC: 621.317.725

GORELIKOV, N. I., Candidate of Technical Sciences, GUTSMAN,
V. G., Engineer, CHAYKOVSKIY, O. I., Engineer, SHEPTEBAN,
R. Z., Engineer

"Digital Comparator Voltmeters"

Abstract: The article describes the F485 and F 486 digital
AC voltmeters which operate on the principle of nonsimultaneous
comparison of inhomogeneous voltages. The instruments were
developed by the cooperative efforts of the Institute of Auto-
mation and Electrometry of the Siberian Department of the Acad-
emy of Sciences of the USSR and the Special Design Office at
the L'vov Electrical Measuring Instrument Plant. A block dia-
gram of the instruments is given, and the operating principle
is described. The measurement error in the frequency range
from 45 Hz to 20 kHz is no greater than $\pm(0.1 + 0.1V_x/V_f)$% for
the F485, and $\pm(0.3 + 0.2V_x/V_f)$% for the F486, where V_x is the
instantaneous value of the measured voltage, and V_f is the

1/2

USSR

UDC 632.95

VEKIRCHIK, K. N., GUTSULYAK, B. M.

"Derivatives of Lepidinium as Regulators of the Growth and Development of Plants. V. Effect of (1-phenylquinoline-4)-n-dimethylaminostyrylchloride on Certain Beans"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, No 4, pp 105-108 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N539)

Translation: Data are presented from a study of the effect of the preplant treatment of bean seed with a solution of (1-phenyl-quinoline-4)-n-dimethyl-aminostyrylchloride (I) on the physiological-biochemical processes and the harvest yield of the plants. As a result of treating the seed with a 10^{-6} molar solution of I there was a 12% increase in chlorophyl (a + b) content in the leaves of the plant in the flowering phase, the dry matter content increased by 1%, and the increase in yield was 8-14%.

1/1

Bionics

USSR

GUTSU, I. P., Candidate of Biological Sciences

"Bionics Seeks Reserves"

Kishinev, Sovetskaya Moldaviya, 28 Oct 72, p 4

Translation: From ancient times living nature with its amazing creations has been the object of the fixed attention of thinkers and scientists. But whereas in ancient times humans used the laws of nature in their practical activity in a spontaneous, natural way, and subsequently found by accident many analogies between the processes and designs of living nature and the creations of human hands and minds, today these laws and analogies are becoming the object of research and conscious use. To be more precise, they are "within the sphere" of bionics, one of the youngest and most promising sciences.

In a talk with our correspondent, candidate of biological sciences Ivan Petrovich Gutsu tells of trends in its development and the utilization of its recommendations and conclusions in practical activity.

Question: The slogan of bionics is "Living prototypes are the key to new technology." Does this mean that the final goal of bionics is just the creation of engineering systems?

1/6

USSR

GUTSU, I. P., Sovetskaya Moldaviya, 28 Oct 72, p 4

Answer: Bionics is engaged in the purposeful study of the principles of construction and functioning of biological systems and their elements in order that the knowledge obtained may be used for fundamentally improving existing machines, instruments, equipment, construction designs, and industrial processes and creating fundamentally new ones. So the sphere of interests of bionics involves, above all, the study of those biological processes and mechanisms which, on the basis of their design and functional parameters, can be used to solve concrete problems of the national economy, health, and so on. However, the subject matter of bionics is much broader. It includes the widespread application of principles, mechanisms, and concrete designs tested by nature in various types of practical human activity. The birth of bionics was dictated by the natural process of dialectical development of modern science and technology, and it reflects the everincreasing tendency of science and practical work to draw closer.

Question: Few are surprised any more by the fact that technical systems created by human hands and minds and natural biological design sometimes possess strikingly profound structural and functional similarities. But after all, not everything in nature is ideal.

2/6

- 6 -

USSR
GUTSU, I. P., Sovetskaya Moldaviya, 28 Oct 72, p 4

Answer: True. Therefore, what bionics teaches is precisely rational copying of living nature, searching for technical methods, means and conditions for using knowledge about biological objects and processes purposefully, not blindly copying nature down to the smallest details. The bionics method of rationally copying nature is usually combined with the creativity of scientists and frequently a number of characteristics not possessed by the living organism are added to the model. The investigator of biological objects and processes, the bionics specialist, is interested, above all, in data which make it possible for him to draw a conclusion on the expediency of using biological mechanisms, principles, and adaptations which do not yet exist in manmade form.

Here are some concrete examples. Means of navigation are well known. But the existing systems are cumbersome and expensive. At the same time, biologists know a large number of living organisms which possess marvelous systems for orientation and navigation. They are significantly better than those we have in engineering. Sea turtles, for example, swim several thousand kilometers to sea, but they return to the very same spot to lay their eggs. It is assumed that they use the stars in the sky for long-distance orientation, while for short-range orientation they use the smell of coastal waters. It would be useful for engineering to figure out the astounding

3/ 6

USSR

GUTSU, I. P., Sovetskaya Moldaviya, 28 Oct 72, p 4

capabilities of pigeons. Scientists' first experiments lead us to the thought
that pigeons have sensitivity to the earth's magnetic field, although orienta-
tion by stars is not impossible. And wouldn't it be interesting to discover
how the swordfish is able to develop speeds of up to 130 kilometers an hour
in the water, or to learn the secret of the endurance of the stormy petrels,
who travel 10,000 kilometers without stopping?

Or look at the following stunning comparison. The ratio of weight
to engine power in horsepower for the IL-18 and TU-114 airplanes is 14, while
for the eagle the coefficient is 70 and for the stork it is 135. And here
is another example. Whereas for our construction designs the ratio of height
to the greatest diameter does not exceed 250-300 (wheat). The static and
dynamic loads on the wheat in this case, as for other plants, are concentrated
at the upper end of the structures. There is no doubt that an analysis of
similar natural construction will be very useful in practice. It will help
engineers find improved construction designs and architectural forms and will
suggest a number of interesting concepts for optimal distribution of leads and
technology for manufacturing universal construction materials.

Question: All that is unquestionably very interesting. But are there
precedents for   such borrowing in current-day practice?

4/6

- 7 -

USSR

GUTSU, I. P., Sovetskaya Moldaviya, 28 Oct 72, p 4

        Answer: Of course there are. Measuring technique, for example,
has received quite a few. An instrument which has received the name gyrotron
was created by analogy with the organ of certain insects which reacts to angular
deflection. On the basis of certain principles of the construction and func-
tioning of the insect eye, a ground speed measuring device for airplanes and
other aircraft has been created. An instrument which forecasts the approach
of a storm 15 hours before it arrives has been designed on the basis of the
operating principle of   certain organs of the jellyfish.
        A new surfacing which sharply reduces water resistance when ships
move has been created on the model of dolphin skin. Very reliable and con-
venient-to-use self-sharpening cutting tools for turning lathes have been
developed on the model of rodent teeth. An analysis of the ways that penguins
move across snow made it possible for Soviet scientist A. Nikolayev to
construct a new type of all-terrain vehicle for the polar regions of the
country, and it develops speeds up to 50 kilometers an hour. All this is
just a small part of what science and engineering have already borrowed from
living nature.
        Question: And now, please, a few words about nature's "Patients", the
substance of which it has not yet been possible to reveal. In other works,
what are the prospects of bionics...
5/6

USSR

GUTSU, I. P., Sovetskaya Moldaviya, 28 Oct 72, p 4

Answer: Among them we may include searching for biological ways to extract useful minerals, processing wood tissue into proteins and fats (and by the way, termites have this property), and the problem of fresh water. Bionics has an enormous part in the development of medicine, in comprehending one of the greatest riddles of nature, the secret of the human brain....

Academician Kedrov once remarked that our time will probably by marked not so much as the century of the atom, cybernetics, and space sciences, as the age of biology and bionics. One cannot disagree with this, bearing in mind the principal problem of the young science, seeking reserves and possibilities whose use will make it possible to increase production efficiency, labor productivity, and public welfare even more.

The practical achievements of bionics may still be fairly modest, but the prospects are enormous. By borrowing reserves from nature and making them material, bionic scientists are making a substantial contribution to development of our country's national economy and to the progress of our society.

6/6

USSR

BUTNITSKIY, I. N., ROGOVIK, M. K., GUTSULYAK, B. M.

"Derivatives of Lepidinium as Plant Growth and Development Regulators. IV.
Synthesis and Physiological Activity of Some Derivatives of 1-methyl-6-oxy-
lepidinium Chloride"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active
Materials. Republic Interdepartmental Collection), 1972, No 4, pp 101-105
(from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N641)

Translation: A method was developed for obtaining compounds with the formula
(I): 137.6 grams of p-MeNHC$_6$H$_4$OH, 240 ml of acetone, 4.9 ml of concentrated
HCl (acid) and 100 ml of water were heated at 80°, and a mixture of 12 grams
of paraform, 40 ml of BuOH, 1 ml of concentrated HCl (acid) and 60 ml of
acetone was added with mixing. The reaction mass was heated for 4 hours and
left to stand for 24 hours. The acetone was driven off, 120 ml of alcohol

USSR

BUTNITSKIY, I. N., et al., Fiziol. aktivn. veshchestva. Resp. mezhved. sb.,
1972, No 4, pp 101-105

was added, the mass was cooled and the I (R = H, Y = H$_2$, X = Cl) (Ia) was
isolated with a melting point of 185° and a 50% yield. On replacing the HCl
(acid) with 57% HClO$_4$, I (R = H, Y = H$_2$, X = ClO$_4$) was obtained with a melting
point of 195-197°. The reaction of Ia with the corresponding aromatic alde-
hydes in the presence of pyridine yields I (R, Y, X are presented, melting
point in °C): H, CHPh, Cl 233-235; H, CHC$_6$H$_4$NO$_2$-π, Cl, 217; H, CHC$_6$H$_4$NO$_2$-m
Cl, 223-224; H, CHC$_6$H$_4$OH-π, Cl, 223-225; H, CHC$_6$H3OH-π-OMe-m, Cl (Ib), 228-229;
H, CHC$_6$H$_4$NMe2-π, Cl (Ic), 207-209. On solution in an acetic anhydride medium,
I (R = Ac, Y = CHC$_6$H$_4$NMe$_2$-p, X = Cl) is obtained with a melting point of 74-5°.
Also 1-methyl-6-oxyquinoline-4-(1'-ethylquinoline-4')-monomethinecyaniniodide
is obtained with a melting point of 205-207°. The growth stimulating activity
of Ib and Ic in the initial growth phase of Belotserkovskaya 23 wheat and
Nadezhnyy oats with a 0.0001 M concentration of the solutions is equal to the
activity of K heteroauxinate. For Part III see RZh-Khimiya, 1971, Abstract
No 18N683.

2/2

USSR   UDC 547.831.1:...4:577.391.87

GUTSULYAK, E. H., Ivan Franko Institute of Petroleum and Gas

"Quinolinium Salts as Biologically Active Compounds"

Moscow, Uspekhi Khimii, Vol 41, No 2, Feb 72, pp 348-374 .

Abstract: A review with 303 references covering the utilization of quinolinium salts as biologically active substances; a structure-activity relationship is presented. By far the major attention is devoted to the antimicrobial activity, where the quaternary quinolinium salts were found to be more active than the tertiary bases. Other chapters are devoted to antitubercular and antiprotozoal activity, the effects of quinolinium salts on nervous-system process and on enzymes, as well as their activity as plant growth and development activators. The penultimate chapter covers the carcinogenic as well as the antitumor activity of quinolinium compounds.

1/1

Vacuum Tubes

UDC 621.385.64

USSR

GUTTSAYT, E.M.

"Calculation Of The Characteristics Of A Magnetron By A Study Of Electron Conduction"

Tr. Mosk. energ. in-ta (Works Of Moscow Power Institute), 1972, Issue 90, pp 140-146 (from RZh:Elektronika i yeye primeneniye, No 8, August 1972, Abstract No 8A97)

Translation: The paper sets forth a method of calculation of the active and reactive components of the electron conduction of a multicavity magnetron. The method is based on a determination of an induced current with the aid of a specific model of an electron spoke convergent from the hub of the space charge to the anode. The boundaries of the spoke are determined by the relations between the intensities of the synchronous, static, and high-frequency fields. The calculated amplitude characteristics of the electron conduction are presented for various values of the anode voltages and magnetic inductions. The active electron conduction has a nonmonotonic dependence on the amplitude of the high-frequency voltage U_t with an ascending initial segment. The characteristics of the electron conduction are used to determine the power and frequency of generation at points of steady-state oscillations, with various values of the exterior Q of the resonator system. The conditions are determined for the disruption of

1/2

GUTTSAYT, E.M. Tr.Mosk.energ.in-ta, 1972, Issue 90, pp 140-146

generation and the change of the boundaries of the generation zone as a function
of the high-frequency load. An expression is also obtained for the anode current
as a function of the magnitude U_t, and the current-voltage characteristics are
calculated. Curves are presented of the electron displacement of a frequency
passing through the maximum (as this is observed experimentally).Besides that,
on the basis of the characteristics of the electron conduction presented, the
amplitude characteristics are calculated and plotted of a regenerative magnetron
amplifier with an inserted load exceeding the limiting value. The magnitude is
determined of the threshold power of the input signal. All calculated character-
istics are found in good accordance with experimental results published earlier.
7 ref. E.G.

2/2

UDC: 519.24

USSR

GUTTSAYT, Ye. M.

"On the Uncorrelatedness and Independence of Adjacent Values of a Periodogram"

Tr. Mosk. in-ta zh.-d. transp. (Works of the Moscow Institute of Railway Transportation Engineers), 1970, vyp. 367, pp 312-321 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V363)

Translation: On the basis of previously known relationships, an asymptotic estimate is given for the correlation coefficient of values of the periodogram $G^x(f)$.

$$G(f) = \frac{2}{T} \left[\int_0^T x(t) e^{-2\pi j f t} dt \right]^2 .$$

The estimate is defined for various spectral functions. Yu. Leonov.

1/1

TITLE--EXCITED STATES OF ALTERNANT HYDROCARGONS IN A MO LCAO
   APPROXIMATION. II. SINGLET AND TRIPLET ABSORPTION SPECTRA OF CONDENSED

AUTHOR-(03)-MESTECHKIN, M.M., GUTYRYA, L.S., POLTAVETS, V.N.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 38(3), 454-61

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--EXCITED STATE, MOLECULAR ORBITAL, NAPHTHALENE, ANTHRACENE,
   AROMATIC HYDROCARBON, ABSORPTION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/C08 STEP NO--UR/0051/70/028/003/0454/0461

CIRC ACCESSION NO--AP0140273
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140273
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MO LCAO CALCNS. SUGGESTED
PREVIOUSLY (M. AND G., 1969; M., 1969) WERE APPLIED TO NAPHTHALENE,
ANTHRACENE, TETRACENE, PYRENE, PERYLENE, PICENE, 1,2,BENZOPYRENE,
PHENANTHRENE, CHRYSENE, 1,2:5,6,DIBENZANTHRACENE, 1,2,BENZANTHRACENE,
AND 1,2,:10,11,DIBENZOPERYLENE; THE ENERGIES OF THE SINGLET AND TRIPLET
ELECTRONIC TRANSITIONS ARE TABULATED. THE THEORETICAL VALUES WERE
CORRELATED WITH THE POSITIONS OF THE MAIN ABSORPTION BANDS AND WITH THE
TRIPLET TRIPLET ABSORPTIONS. THE ACCURACY OF THE CALCNS. ARE 0.1-0.2
EV.

UNCLASSIFIED

TITLE--FINE STRUCTURE OF BARIUM TITANATE SINGLE CRYSTALS -U-

AUTHOR-(04)-GUYENOK, YE.P., ZABARA, YU.V., KUDZIN, A.YU., FOMICHEV, O.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3) 956-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--BARIUM TITANATE, SINGLE CRYSTAL, CRYSTAL LATTICE DEFECT,
  CRYSTAL LATTICE DISLOCATION, ETCHED CRYSTAL, CRYSTAL STRUCTURE ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0584   STEP NO--UR/0181/70/012/003/0956/0958

CIRC ACCESSION NO--AP0105567
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0105567

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   THE FINE STRUCTURE OF BATIO SUB3
CRYSTALS GROWN FROM SOLN. IN A KF MELT WAS INVESTIGATED. DEFECTS AND
DISLOCATIONS WERE DEVELOPED BY SELECTIVE ETCHING (ORTHOPHOSPHORIC ACID
AT 130-150DEGREES). CRYSTALS WERE CUT ALONG THE (100) OR (110)
DIRECTION IN THE (001) OR (100) PLANE. ON THE (100) PLANE SQUARE
ETCHING FIGURES WERE OBSD., AND ON THE (110) PLANES, ELONGATED FIGURES.
THE ETCHING FIGURES WERE DISTRIBUTED NONUNIFORMLY ON THE SURFACE. THEIR
CONCN. WAS HIGHER IN THE REGION OF THE CRYSTAL THE FARTHER AWAY THEY
WERE FROM THE POINT OF THE BEGINNING OF CRYSTAL GROWTH. SOMETIMES, THEY
OCCURRED ALONG THE LINES OF THE SEPN. OF LAYERS. THE ETCHING FIGURES
ARE RELATED TO THE STRUCTURAL INHOMOGENEITY OF THE BATIO SUB3 CRYSTALS,
AND MOST PROBABLY APPEAR ON THE LINEAR DEFECTS OF THE DISLOCATION TYPE.

UNCLASSIFIED

GUYEV, A. A.

space physiology

STUDY OF SELECTIVITY IN ADAPTATION TO CORIOLIS AND LINEAR ACCELERATIONS

Abstract: The effect of habituation to one of three tests (including Coriolis and linear accelerations) on tolerance to the other two was studied. The experiments revealed a nonspecific increase in tolerance to those tests to which no adjustment was acquired.

The attention of specialists engaged in vestibular apparatus adaptation has always been directed to selective adaptation to a vestibular stimulus (K. L. Khilov; A. I. Yarotskiy; Graybiel, et al.). This property is readily detectable if before and after adaptation one uses a test stimulus which differs more or less sharply in its parameters from the training stimulus. In these cases the reaction to the test stimulus is appreciably less weakened than to the training stimulus. It therefore follows that the reaction to the test or to any new labyrinthal stimulus is relatively independent of the preceding training.

At the present time a real need is felt for clarifying the degree of selectivity of adaptation to tests which can be standard in expert medical flight examinations: ACA (accumulation of Coriolis accelerations) (I. I. Bryanov), NACA (normal accumulation of Coriolis accelerations) (S. S. Markaryan), and swinging in Khilov swings. A study of such interrelationships will make it possible to select the optimum stimuli in formating methods for vestibular apparatus adaptation, and in addition, will make it possible to exclude those stimuli to which tolerance can be increased due to repeated exposures to other tests.

In our study the formulated problem was to clarify the degree of selectivity of adaptation to the mentioned vestibular tests.

- 53 -

UDC 51

USSR

GUYEVSKI, ILIYA V.

"Analytical Form of the Solution for the Problem of Quadratic Programming"

Tekhn. mis'l (Engineering Thought), 1972, Vol 9, No 2, pp 7-14, 2, 4, 5 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V319)

Translation: The parametric method of finding a nonnegative vector x^* which gives the extremum of $F(x) = px + x^T Cx$ is proposed where C is a diagonal negatively defined matrix under the conditions $d^T x \leq b$ (here $p > 0$, $d > 0$, $b \geq 0$). The method permits us to express $x^* = f(p, C, d, b)$ in closed form.

1/1

1/2   020   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--SIGNIFICANCE OF PYRILENE TEST IN ROENTGENODIAGNOSIS OF PEPTIC ULCER
-U-

AUTHOR-(03)-KANISCHEV, P.A., KUZNETSOV, V.G., GUYVIK, V.O.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 29-30

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, GANGLIONIC BLOCKING AGENT, DUODENUM,
  LESION, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0700   STEP NO--UR/0504/70/042/005/0029/0030

CIRC ACCESSION NO--AP0126412
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0126412
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN INTENSIFIED PERISTALSIS,
  INCREASED TONE OF THE STOMACH AND THE DUODENUM, ACCELERATED EVACUATION,
  SPASMS OF THE PYLORUS OR BULB DETECTION OF A NICHE IS NOT ALWAYS
  POSSIBLE. TO DECREASE THE TONE AND DECELARATION OF PERISTALSIS, AS WELL
  AS FOR RELEAVING SPASMS A GANGLION BLOCKING AGENT PYRILENE WAS SUED.
  AFTER ROUTINE STUDY AND DETECTION OF THE ABOVE MENTIONED SIGNS OF
  DYSFUNCTION OF THE STOMACH AND THE DUODENUM A PATIENT WAS GIVEN 2
  · TABLETS OF (10 MG) OF PYRILENE AND REPEATED INVESTIGATION WAS CONDUCTED
  60-75 MINUTES LATER. AS A RESULT OF HYPOTENSIVE ACTION OF PYRILENE
  PATHOLOGICAL PROCESSES WERE REVEALED IN 35 OUT OF 145 ONLY AFTER THE USE
  OF PYRILENE.   FACILITY: OTDEL ZABOLEVANIY ZHELUDKA
  DNEPROPETROVSKOGO N-I INSTITUTA GASTROENTEROLOGII.

UNCLASSIFIED

USSR

GUZ', A. N., Institute of Mechanics, Academy of Sciences, Ukrainian SSR

"The Diffraction of Waves on Finite Bodies of Revolution"

Abstract: An approximate method is proposed for solving linear problems of the steady diffraction of waves of varied physical nature (elastic, viscoelastic, thermoelastic, thermoviscoelastic, and acoustic) on an arbitrary smooth body of revolution. This method is based upon a variant of the method of "perturbation of the boundary shape," proposed earlier by the author. It is assumed that the shape of the body differs little from sphericity. In each of the approximations, the problems are reduced to problems of diffraction in a spherical system of coordinates, the right-hand members of the boundary conditions changing in each approximation, with identical homogeneous wave equations for all approximations. 1 figure. 25 references.

1/1

USSR   UDC: 539.4

GUSHCHA, O. I., LEBEDEV, V. K., GUZ', A. N., MAKHORT, F. G., Kiev

"Some Results of the Application of the Ultrasonic Nondestructive Method of Measurement of Residual Stresses"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 71-73.

Abstract: A method of nondestructive measurement of biaxial residual stresses is described, based on the regularities of propagation of ultrasonic waves in solids. The results of its practical application to the analysis of stresses in specimens and structural elements in the laboratory, as well as measurement of residual stresses in existing structures at aluminum plants are presented.

1/1

- 3 -

GUZ', A. N., Shishkanova, S. F., Institute of Mechanics, Academy of Sciences of the USSR, Kiev; Zaporozh'ye Machine Building Institute

"Concerning the Solution of Problems for a Circular Cylindrical Shell on an Elastic Base When the Shell is Weakened by Circular Holes"

Abstract: A method previously proposed by A. N. Guz' for solving problems of stress concentration around circular and curvilinear openings of moderate sizes in thin elastic shells weakened by a finite number of holes is used in conjunction with a method of perturbation theory — representation of the solution in the form of a series in powers of a small parameter — to study the stressed state in a cylindrical shell on an elastic base in the case where the shell is weakened by a finite number of circular openings of different diameters. In each of the approximations, the problem reduces to an infinite system of linear algebraic equations. In the first four approximations, quasiregularity and uniqueness of the solution of these systems is proved with certain assumptions concerning the load applied to the edges of the openings. The method is illustrated by an example of a thin cylindrical shell weakened by two equal circular holes loaded by constant external pressure. One figure, one table, bibliography of ten titles.

1/1

USSR   UDC 539.3

GUZ', A. N., Kiev, Institute of Mechanics AN Ukr SSR

"On Equilibrium Bifurcation of a Three-Dimensional Elastic Body With a Finite
Uniform Deformation"

Kiev, Academiya Nauk Ukr SSR, Prikladnaya Mekhanika, Vol 7, No 2, Feb 71,
pp 18-25

Abstract: Characteristic equations for elastic bodies (cylindrical shell,
rod rectangular and circular plates), and strip with finite uniform defor-
mation and an arbitrary form of elasticity potential are derived in accordance
with the theory of finite subcritical deformations, for the case of inner
and surface instability. The derivations of these equations is based on
general solutions obtained previously by the author for a body with arbitrary
form of the elasticity potential and in the presence of uniform deformations,
using a static approach. General solutions similar to those of Papkovich-
Neyber and Galerkin are presented for the case of omnidirectional uniform
subcritical deformation. 34 formulas, 10 references.

1/1

USSR   UDC 539.3

GUZ, A. N., MAKHORT, F. G., GUSHCHA, O. I., LEBEDEV, V. K.,
Institute of Mechanics, Academy of Sciences, Ukrainian SSR,
Institute of Electric Welding, Academy of Sciences, Ukrainian
SSR (Kiev)

"On the Theory of Wave Propagation in an Elastic Isotropic Body
With Initial Deformations"

Abstract: The influence of initial deformations upon the propa-
gation velocity of elastic waves in an isotropic body is studied
within the framework of the theory of finite initial deformations
and several variants of the theory of small initial deformations
in terms of Lagrange coordinates, with the use of Green's de-
formation tensor. Proof is given of the conditions that must be
satisfied by the form of the elastic potential in order to ex-
plain the experimentally obtained rules. Research results for
organic glass are presented. The values of second-and third-
order elastic constants for organic glass are computed. 2 figures,
1/1 15 bibliographic entries.

- 76 -

USSR   UDC 539.3

GUZ', A. N., Institute of Mechanics, Academy of Sciences, Ukrainskaya SSR (Kiev)

"The Propagation and Diffraction of Waves in Bodies With Noncircular Cylindrical Boundaries"

Kiev, Prikladnaya Mekhanika, Vol 9, No 9, 1973, pp 3-11

Abstract: There is set forth an approximate method for solving linear problems of the propagation and diffraction of waves of various physical types in bodies with noncircular cylindrical boundaries. The method is based upon a variant of the method of "disturbance of the boundary shape," proposed earlier by the author.
     This method permits the construction of approximate solutions of linear problems (four approximations are taken into account) of the steady diffraction and propagation of waves of varied physical nature in bodies bounded by noncircular cylindrical surfaces. In each of the approximations, the problems are reduced to the corresponding problems in a circular cylindrical system of coordinates with homogeneous equations, equal for all the approximations, with changing right-hand sides of the boundary conditions in each of the approximations. The results are obtained in general form for all linear problems of the mechanics of a continuous medium. 26 references.
1/1

USSR

UDC 539.3

GUZ', A. N., MAKARENKOV, A. G.

"The Supporting Capacity of Spherical Shells With a Circular Reinforced Aperture"

Problemy Prochnosti, No 4, April 1970, pp 59-63

Abstract: The article deals with determination of the supporting capacity of a spherical shell in the zone of stress concentration which, as a rule is the starting point of destruction. The shell is loaded by an internal pressure P. By supporting capacity is meant the value of the pressure at which the structure attains a limit state corresponding to the start of destruction. It was found that in verification calculations of such shell structures and in determination of the strength-reserve coefficient, satisfactory agreement with experimental results may be obtained when the strength criterion is used in accordance with the theory of shape-alteration energy. Deformation strength theories yield greater scattering, even within the limits of a narrow range of destructive pressures. In determining the supporting capacity of the structures, the best coincidence with experimental results are obtained in the case of deformation strength theory. The introduction of ultimate deformation intensity as a strength criterion in such a case yields results which practically coincide with results obtained on the basis of the theory of maximum linear deformations.
1/1

1/2   024   UNCLASSIFIED ·   PROCESSING DATE--20NOV70
TITLE--SOME QUESTIONS CONCERNING THE STABILITY OF NONLINEARLY ELASTIC
    BODIES IN THE CASE OF FINITE AND SMALL SUBCRITICAL STRAINS -U-
AUTHOR--GUZ, A.N.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, APR. 1970, P. 51-58

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ELASTICITY, SHELL STRUCTURE STABILITY, METAL STRESS, STRAIN,
    BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1617   STEP NO--UR/0198/70/006/000/0051/0058

CIRC ACCESSION NO--AP0125239
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0125239

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF A THREE DIMENSIONAL
NONLINEARLY ELASTIC BODY WITH AN ARBITRARY FORM OF THE ELASTIC
POTENTIAL, EXPERIENCING FINITE OR SMALL SUBCRITICAL STRAINS. THE
GENERAL PROPERTIES OF THREE DIMENSIONAL STABILITY THEORY ARE EXAMINED.
IT IS SHOWN THAT THE CORRESPONDING BOUNDARY VALUE PROBLEMS ARE SELF
CONJUGATE, AND THAT THEY CAN BE REDUCED TO AN INFINITE SYSTEM OF
ORDINARY DIFFERENTIAL EQUATIONS.   FACILITY: AKADEMIIA NAUK
UKRAINSKOI SSR, INSTITUT MEKHANIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

TITLE--APPLICABILITY OF THE TWO DIMENSIONAL APPLIED THEORIES TO THE
   PROBLEMS OF STABILITY UNDER AXIAL COMPRESSION OF CYLINDRICAL SHELLS MADE

AUTHOR-(04)-GUZ, A.N., BABICH, I.YU., PELEKH, B.L., TETERS, G.A.

COUNTRY OF INFO--USSR

SOURCE--MEKHANIKA POLIMEROV, VOL. 6, JAN.-FEB. 1970, P. 141-143

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHELL STRUCTURE STABILITY, PLASTIC MECHANICAL PROPERTY,
   ELASTICITY THEORY, SHEAR STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1944   STEP NO--UR/0374/70/006/000/0141/0143

CIRC ACCESSION NO--AP0108273
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108273
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE APPLICABILITY OF
THE TWO DIMENSIONAL, KIRCHHOFF LOVE APPLIED THEORIES OF THE TIMOSHENKO
AND AMBARTSUMIAN TYPE, TO THE STABILITY PROBLEMS OF SHELLS WITH A LOW
SHEAR RIGIDITY. CRITICAL STRESSES CALCULATED BY USING THESE THEORIES
ARE COMPARED WITH RESULTS OBTAINED BY BABICH (1968) FOR STABILITY OF
CYLINDRICAL SHELLS ON THE BASIS OF GENERALIZED SOLUTIONS OF THE THREE
DIMENSIONAL, LINEARIZED SOLUTIONS OF THE ELASTICITY THEORY.

UNCLASSIFIED

USSR

GUZ, A. S. (Kiev State University)

"A Method of Solving the First Boundary Value Problem for a Hyperbolic Equation with Variable Coefficients" (presented by Academician I. Z. Shtokalo, Ukrainian Academy of Sciences)

Kiev, Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky; June, 1972; pp 497-501

ABSTRACT: The solution of the first boundary value problem for a linear hyperbolic equation with variable coefficients is sought in the form of the sum of the solutions of two problems. Introduction of the differential invariant $\eta(x) = \frac{1}{4}\left[\frac{b''(x)}{b(x)}\right] - \frac{5}{16}\left[\frac{b'(x)}{b(x)}\right]^2$ into the consideration allows one to find the solution to one of the problems in explicit form. For the solution of the second problem an integral equation solved by a method of successive approximations is obtained.

There are five bibliographic references.

1/1

UDC 669.71'782.046(088.8)

USSR

ZHEREBNOY, I. A., GUZ', D. S., AVDEYEV, M. P., and BRUSAKOV, Yu. I.

"Method of Charge Pelletizing"

Translation: A method of charge pelletizing by moistening, mixing with a
binder, forming, and drying is presented. To produce pellets with high
porosity, the initial charge is moisturized to 18-30%, and drying is per-
formed at 170-200°.

1/1

USSR

GUZ', I. S., DEMINA, G. S., KOROBOV, Yu. M.

"Interaction of Elastic Waves with the Boundary in a Bicrystal"

VII Vses. Konf. po Polyarizats.-optich. Metodu Issled. Napryazh., 1971, T. 3
[VII Sll-Union Conference on Polarization-optical Method of Studying Stresses,
1971, Vol 3 -- Collection of Works], Tallin, 1971, pp 171-172, (Translated
from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V135 by Kh.
K. Aben).

Translation: The method of dynamic photoelasticity, in combination with
selective etching, is used to study the distribution of dynamic stresses in
the zone of a boundary in materials with crystalline structure. Studies were
performed on flat specimens of bicrystals of lithium fluoride having low-angle
(less than 5°) and broad-angle (over 10°) disorientation. A photoelastic
coating 0.1 mm thick was applied to one face of the crystal. The stress wave
was excited by a micro-explosion of lead azide and sent through a waveguide
to the end of the specimen. A cinegram of the interaction of the stress wave
with the boundary, produced at 720,000 frames per second, is presented. The
study performed shows that a great portion of the energy is reflected from
the boundary, while significantly less passes through to the second crystallite.
1/2